REMARKS

Summary of the Restriction Requirement

In the Election of Species Requirement dated April 30, 2003, the Examiner required an election between five species: Species A, drawn to Figures 1-9B; Species B, drawn to Figures 10A-11; Species C, drawn to Figure 12; Species D, drawn to Figures 13-14; and Species E, drawn to Figures 15-16.

Response to the Restriction Requirement

Applicants hereby elect Species A (claims 1-8) drawn to Figures 1-9B for examination. Applicants respectfully request formal examination of this application. Of course, Applicants preserve the right to pursue the non-elected species in one or more divisional applications.

Amendment to the Specification

Applicants amend claims 1 and 7 to describe the invention differently, and amend the specification accordingly. Specifically, Applicants amend the specification to recite "~~below~~ above a lower limit" at page 5, line 9. Applicants amend the specification to recite "~~below~~ above the lower limit" at page 5, line 13, page 8, line 1, and page 8, line 13. Applicants respectively submit that these amendment do not introduce new matter as they are supported by the original disclosure in the application as filed at least by the recitation at page 8, lines 20-22, and the recitation at page 28, lines 15-23.

Amendment to Claims 1 and 7

Applicants amend claim 1 to recite "ink amount detected by the detecting means is ~~below~~ above a lower limit," and amend claim 7 to recite "ink amount detected by the remaining ink amount detecting means is ~~below~~ above the lower limit." Applicants respectively submit that these amendment do not introduce new matter as they are supported by the original disclosure in the application as filed at least by the recitation at page 8, lines 20-22, and the recitation at page 28, lines 15-23.

Conclusion

Applicants respectfully request formal examination of this application.

Attached hereto is a marked-up version of the changes made by the current amendment. The attachment is captioned "**VERSION WITH MARKINGS TO SHOW CHANGES MADE**."

If there are any fees due in connection with the filing of this paper, please charge those fees to Deposit Account No. 50-0310.

Except for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. §§ 1.16 and 1.17 which may be required, including any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The paragraph beginning at page 4, line 24 is replaced with the following paragraph:

-- In order to achieve the above object, a first aspect of the present invention is an ink jet recording apparatus comprising: a recording head including an ink tank for storing ink, the recording head being driven and controlled based on image information so as to jet onto a recording medium ink supplied from the ink tank; detecting means for detecting the amount of ink remaining in the ink tank; supply means including a main tank for storing ink, the supply means supplying ink from the main tank to the ink tank when the recording head is disposed at an ink supplying position; and control means for controlling the supply means so that, when the remaining ink amount detected by the detecting means is ~~below~~ above a lower limit, ink is supplied during non-recording time in an amount corresponding to the amount of ink used.--

The paragraph beginning at page 5, line 12 is replaced with the following paragraph:

-- In this structure, when the remaining ink amount detected by the detecting means is ~~below~~ above the lower limit of the ink in the ink tank, the control means controls the supply means so that ink is supplied from the main tank to the ink tank, which is disposed at the ink supplying position during non-recording time, in an amount corresponding to the amount of ink used. Non-recording time described herein (or during non-printing operations which will be described later) refers to time other than the time ink is jetted onto the recording medium, and typically refers to the time between recording jobs, the standby time for recording, or the preparation time for recording. Ink may be supplied during a job as long as the ink supply does

not delay recording, and the non-recording time may be any length of time as long as it does not delay recording. Namely, ink is supplied to the ink tank during non-recording time in an amount corresponding to the amount of ink which has been used. Thus, the time the ink amount reaches the lower limit can be delayed. Further, image defects caused by shortage of ink, and decreases in the recording speed can be prevented. As a result, it is possible to significantly decrease the probability of recording being interrupted by shortage of ink.--

The paragraph beginning at page 7, line 13 is replaced with the following paragraph:

-- A second aspect of the present invention is an inkjet recording apparatus comprising: an inkjet recording head including an ink tank to which ink is supplied, the ink jet recording head printing by jetting the ink from the ink tank in accordance with image information in a print job; remaining ink amount detecting means for detecting the amount of ink remaining in the ink tank at predetermined time intervals and outputting an empty signal indicating shortage of ink when the ink amount is no more than a lower limit; ink supply means including a main tank for storing ink, the ink supply means supplying ink from the main tank to the ink tank in response to the empty signal outputted from the remaining ink amount detecting means; and control means for controlling the ink supply means such that, when the remaining ink amount detected by the remaining ink amount detecting means is ~~below~~ above the lower limit, ink is supplied to the ink tank in an amount corresponding to the amount of ink used.--

The paragraph beginning at page 8, line 3 is replaced with the following paragraph:

-- In the inkjet recording apparatus according to the second aspect, the remaining ink amount detecting means detects the amount of ink remaining in the ink tank at predetermined

time intervals and outputs an empty signal indicating a shortage of ink when the remaining ink amount is no more than a lower limit. The ink supply means includes a main tank for storing ink and supplies ink from the main tank to the ink tank in response to the empty signal outputted from the remaining ink amount detecting means. The control means controls the ink supply means so that, when the remaining ink amount detected by the remaining ink amount detecting means at the predetermined time intervals is ~~below~~ above the lower limit, ink is supplied to the ink tank in an amount corresponding to the amount of ink which has been used.--

IN THE CLAIMS:

Claims 1 and 7 are amended as follows:

1. (Amended) An ink jet recording apparatus comprising:

a recording head including an ink tank for storing ink, the recording head being driven and controlled based on image information so as to jet onto a recording medium ink supplied from the ink tank;

detecting means for detecting the amount of ink remaining in the ink tank;

supply means including a main tank for storing ink, the supply means supplying ink from the main tank to the ink tank when the recording head is disposed at an ink supplying position; and

control means for controlling the supply means so that, when the remaining ink amount detected by the detecting means is ~~below~~ above a lower limit, ink is supplied during non-recording time in an amount corresponding to the amount of ink used.

7. (Amended) An ink jet recording apparatus comprising:

an ink jet recording head including an ink tank to which ink is supplied, the inkjet recording head printing by jetting the ink from the ink tank in accordance with image information in a print job;

remaining ink amount detecting means for detecting the amount of ink remaining in the ink tank at predetermined time intervals and outputting an empty signal indicating shortage of ink when the ink amount is no more than a lower limit;

ink supply means including a main tank for storing ink, the ink supply means supplying ink from the main tank to the ink tank in response to the empty signal outputted from the remaining ink amount detecting means; and

control means for controlling the ink supply means such that, when the remaining ink amount detected by the remaining ink amount detecting means is ~~below~~ above the lower limit, ink is supplied to the ink tank in an amount corresponding to the amount of ink used.